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EAST EUROPE REPORT

Scientific Affairs

No. 715

Contents

PSYCHOLOGICAL EFFECT OF TELEVISION ON CHILDREN EXAMINED

Sofia BULGARSKI ZHURNALIST in Bulgarian No 7, 1981 pp 14-19

[Article by Khristo Bonev: "Children and Television"]

[Text] At this point it would be hardly possible to imagine life without tele-
vision. To an even greater extent this applies to the modern child, for whom it
becomes an element of the household environment from the time of his birth. From
the very beginning the child is impressed by the set from which come the changing
images on the small screen. From that time on the set becomes the child's toy.
The child tries to reach it, stretches his hands, and learns from an early age how
to turn it on and forgets to turn it off with increasing frequency.

No one would seriously argue the point that today children play less wherever TV
is present. Studies made by the former Scientific Research Institute of Radio and
Television and by the Scientific-Information Center of the Committee on Culture
show that the favorite occupation of children in their leisure time is to watch
television: 30.3 percent, compared to 5.4 percent of the time spent in games.

However, children do not look at children's television alone: 25.1 percent of
children between the first and the fourth grades and 55.7 percent of children
between the fifth and eighth grades watch adult programs as well. Naturally, these
percentages are relative, for they are largely the result of the intervention and
the restrictions of the parents, without which even more television would have been
watched.

A certain trend is developing: as the children grow, interest in television
declines. Whereas in the case of the adults, it is becoming a secondary activity
to an increasing extent, it is the primary one for the child. For this reason,
television replaces a number of other activities which are important in terms of
the child's comprehensive and harmonious development.

"Television Boom"

There is hardly any other method which could supply the child with such extensive
information on the unknown world as television. Today children acquire a greater
knowledge of the world at an early age thanks precisely to TV. Within the system
of social and scientific progress, television is developing on a parallel basis with
all other scientific and technical achievements. However, its phenomenal nature
gained its exceptional importance as a result of its penetration into home life,
which it changed considerably.

In the 1970's it was said that the "information flood" would drown the world and that receiving and selecting would become impossible. Examples were given of the repeated doubling of knowledge as a result of the scientific and technical revolution. Whereas mankind's knowledge doubled between 1900 and 1950, compared with the preceding 300 years, today the doubling takes far less time: 7 years in chemistry, 5 years in electronics, and so on.[1] New information is born every second. Every 25 seconds an article containing new information is being written.[2] This both real and mythical information information flow can reach man only thanks to media which make use of electronics.

Two directions, related to the development of television and its social consequences, became apparent in the electronic escalation in the West. The first was the optimistic one, which supported television. It considered the world entirely through the small screen. According to it the future cultural development of mankind would be possible above all through television. A variety of experiments were undertaken on so-called "educational television," which could change the educational process both at school and at home. School curricula were reorganized in order to be synchronized with television programs. Experimental schools, classrooms and laboratories were set up. The production of cassettes with an educational content rose incredibly. Naturally, this "television-educational boom" was encouraged by the industrial complex for purely financial reasons. Even the studies which were being made were aimed in support of this campaign. Thus, for example, with the help of laboratory studies K. Steifenbach proved that a person memorizes 10 percent of what he reads, 20 percent of what he hears, 30 percent of what he sees and 50 percent of what he sees and hears simultaneously.[3] Marshall McLuhan enthusiastically claimed that television is the means through which man will mainly communicate in the future, turning television into one big village.[4] The second, the pessimistic, also absolutized the power of television. However, it believed that as early as the 1980's it will bring mankind into a state of social loneliness and social atrophy. Everyone would be alone and communicating only with television systems, deforming or abandoning many other activities inherent to man. In this state of hopelessness, according to Richard Diel, mankind will seek a new yet very old type of communication: conversation between two people.[5]

However, the 1970's passed and we are entering the 1980's. The hopes assigned to the educational tendency did not come true to the expected extent.[6] A decentralization of cultural processes which television was unable to limit or encompass appeared. Communications among human beings defeated the television aggression. The "information crisis" went away. It turned out that by itself television cannot become the main structure-forming factor of human culture. Such behavioristic infatuation with the role of television based on the "stimulus-reaction" system relied on a mass awareness whose biopsychological mechanisms could be controlled from the panels of electronic machines.

The use of the real advantages of television fully synchronized with the social system is a truly difficult process. However, it can be carried out only in class-social conditions which are radically different from those of the bourgeois society, i.e., under the conditions of the socialist society, in which television and the other mass communication media are subordinated to the profoundly humane objective of building a developed socialist society and molding a comprehensively and harmoniously developed individual.[7]

Arguments "For" and "Against"

It is true that television has comprehensively taken the place of fairytales and stories. In this sense it has limited communications between parent and child, considerably reducing it to an instrumental communication. This is developing into a lifestyle. The busy parents are increasingly dedicating less time to their children. This time is particularly necessary for communicating in the course of which social experience and knowledge of life are shared and the imagination and emotions are enriched. Compared with the parents' potential for doing this, television offers far greater possibilities. The information provided by the mass media is basic to modern man. Studies have indicated that only 5 percent of all information comes from interpersonal contacts. The advantage of television, consequently, is natural. However, reducing the possibility of communicating with the parents leads to losses which cannot be detected immediately. In listening to the stories of his parents, the child acquires a view of the world which is different from that of others and the words themselves enable him to develop his own profoundly individual feeling. The child has the freedom of imagination which enables any child to develop his own world, based on profoundly intimate concepts and imagination, different from those of the other children. This makes the sensitivity of the child broader, more colorful and more active. Information provided by other sources further develops, corrects and, sometimes, even changes the concept created within the child's consciousness. Whereas in the case of television, along with the unquestionable wealth of information, from an early age the child is presented with visually accessible and prepared models. The child is given models of good, bad, beautiful, ugly, funny, sad, pleasant and fearsome. However, even this is not too bad. What is bad is that because of the mass nature of the medium, all children develop the same models. Concepts and the imagination become standardized. In inverse proportion to the possibilities offered by television, knowledge becomes restricted. The child begins to think the way the television thinks. From being a toy in the hands of the child, the television turns the child into a toy. This, however, has lasting and profound consequences. That is why it is no accident that T. Walter believes that children who wish to be distracted by television actually suppress their creative capability.[8] That is also why it is no accident that James Halloran, chairman of the UNESCO Mass Communications Commission, published the article "Attention--Television" in the periodical COURIER,[9] while in the newspaper NARODNA KULTURA Todor Petev published the article "Attention--Children in Front of the Television Set!"[10]

Unquestionably, if we followed this path of criticism, we would reach a pessimistic dead end. This would be the case if we studied the "children-television" ratio out of context of the social environment and the class-social structure of society and its objectives. We can analyze what television gives to us and takes away from us only in relation to society and, therefore, the content of television programs and after that in terms of interrelationships with the values of the parental circle, friends, schools and social organizations, i.e., the entire set of elements which socialize the child in terms of a specific society.

Studies have indicated that children share their impressions of television programs above all with their comrades or friends, followed by their parents, siblings, grandparents, i.e., the family circle and, finally, teachers. Impressions are not shared only by 4-5 percent of the children.

At the same time, the opposite process takes place: the children learn about interesting TV programs mainly from their friends, followed by their parents or other close family members and, finally, a very small percentage of them, from their teachers.

These results lead to several conclusions: first, that the interaction between television and children is not isolated from the social environment. This is due to the circumstance that the very content of television is a reflection of the environment, for which reason the connection takes place along a considerably broader system of "social environment-television-children-social environment." Second, the connection between television and the child takes place mainly on the level of friends, followed by the family and, considerably behind them, the school.

The influence of the environment is unquestionable. It energizes or holds back the viewing of television. Incentives and changes in terms of specific programs are a group event. The friendly circle comes first, for it most frequently energizes viewing, in terms of volume and content, whereas the family circle is most frequently restrictive, and in the majority of cases its restrictions are not accepted internally by the child. To the child the family circle means coercion. The parents direct children to watch mainly children's or educational programs. In terms of programs for adults, restrictions are imposed by force--by preventing the child from going near the television set. As they grow up, however, children are decreasingly interested in children's telecasts and prefer those for adults. Here is an example: 91 percent of all children from the first to the fourth grade watch children's telecasts, compared to 21.1 percent who watch adult programs. In the case of children from the fifth to the eighth grade, 74.9 percent watch children's programs as compared to 55.7 percent who also watch adult programs. Both, however, show a preference for serial features, followed by entertainment programs, plays, musical shows and so on.

This differentiation and change in the child's information interests are related, as we may see, to the child's age and social environment. Gradually, the child begins to select among the tremendous volume of television information. However, it is helped by television itself through the differentiation of programs and variations in their quality. Gradually, the time spent in watching television declines. Against the background of the television the child begins to engage in other activities such as eating, playing, looking at books and, later, even studying. In other words, viewing becomes a secondary activity which is carried out on a parallel basis with a primary one. The child develops a selective mechanism which, against the background of television information, is "turned on" and "turned off" only in the case telecasts whose code (such as interest, curiosity) triggers this mechanism. This mechanism steadily improves and begins to operate on several levels. The child may be watching, i.e., on the surface the mechanism may be turned on, while remaining switched off internally. Such information is not retained by the "information storage area" of the mind. Initially a contact has been established, but the circuit has not been closed. The child selects and retains only specific programs and specific information.

The counteradaptation begins in the course of this consecutive order of adaptation to the information medium. In the course of this dialectically and naturally arrived-at way, the young and still mentally frail personality begins to turn into a social being.[11] It begins to differentiate and adapt not to just anything but to specific information models which carry specific ideas and artistic forms. At

the same time, it begins to develop a critical attitude toward them by approving or rejecting them to the social field of friends, relatives or parents, or else reproducing them in games, at school, in kindergarten, on the street, in the park or at the playground (72.6 percent of children play games in which they identify with television characters). Indeed, although television has a tremendous socializing significance for the child, gradually, with age, its possibilities are reduced. The child discovers games, books, magazines, the radio, the tape recorder and the telephone at home. In the outside world he discovers the street, street traffic, the park, shop windows, streetcars, trains and airplanes. This is followed by the children's theater, motion pictures and organized entertainments such as kindergarten, school, public organizations, circles and rehearsals, with which also begin obligations and requirements and, with them, the establishment of a necessary regimen at home and restrictions concerning television viewing.

It is thus that, while it both enriches and limits the child, television is an equally important factor for the socialization of the child, side by side with the family, the school, friends, artistic culture and other mass communication media.

Television and the World Around Us

One of the characteristic features of television is that it reaches every home. Newsreels, feature films or documentary programs are accepted to one extent or another as knowledge and experience of the world and its phenomena inside the home. Naturally, this takes different forms of experience on the part of the child, based on the content and depth of his feelings. The knowledge which the child acquires through television, particularly as a social experience, of the various tangible areas takes place mainly through emotions. It is through them that awareness of specific events, processes and areas is largely molded.[12] These emotional experiences become the manifestation of the significance of phenomena reflected by television. Even a cognitive disharmony which is triggered in the child in connection with some programs lies, above all, in the area of emotions. This means that different children have different value attitudes toward the phenomena.

The reflection of a given object, phenomenon, or process may be projected in the mind accurately, i.e., objectively. However, the emotions related to its perception are subjective and different for each child.[13] Despite the mass nature of information and programs, they cannot be accepted adequately by all, for which reason the children retain their individuality. In this sense the children's audience shows a heterogeneous attitude toward the same broadcast described by us as a mass program. This means that some emotions are different from the expectations of the communicating agent. In other words, some programs with socially significant ideas and expected reactions cross with the ideas and real reactions of the child as a result of the different depth, content and shape of emotions and of awareness. That is why the most effective television program is only the one which can trigger adequate emotions.

As we may see, the reflection of the same object varies from child to child. The characteristic feature of television, however, lies elsewhere. It is not only the different attitude toward the program as such, i.e., the ready-made informative or artistic product, but the specific nature of television as a medium which reflects the object and recreates it triggers a different reflection. However, this is accomplished in such a way as to trigger emotions which are not consistent with the

object itself, as it is in reality, but with the reflected object in a guided and shaped attitude toward it. Subsequently, this attitude becomes an attitude toward social reality. In other words, whereas in the case of a direct connection between the object and the child we have a direct reflection, accompanied by respective emotions, in the case of television we have a reflection of a reflection in the course of which the child may experience different emotions.[14] Usually, this reflection is a direction and has a different attitude toward the world and toward reality. If this attitude agrees with the emotions triggered by reality, while providing an enriching and further developing value to the child, it becomes socially significant. If the reflection is stronger than the real world the child develops an attitude which can come only from television. The reflected object is not the same as it is in the real world. Sometimes it even is not to be found in it, for it has been made so specific as to be possible only within the framework of the television program. At that point, in the case of the child he acquires the so-called "television life" or "television world" which is not consistent with real life and the real world.

The opposite is quite frequently the case: television creates weak concepts and programs as reflections of the objective world. Emotions triggered by the real world are far greater and richer. At this point such telecasts have no influence on the child and fail to trigger his emotions.

Our television tries to help, through the reflections it provides, to create an atmosphere which will contribute to the more complete and richer perception of the real world and will interpret the emotions it triggers. In some cases, however, it is unable to carry out this assignment. At that point the child clashes with the environment which proves to be richer or poorer than the emotions created by television. In such a case television has a restraining, a limiting role in the life of the child. In the previous case the connection between television and child is, actually, an interaction between "social environment-television-children-social environment." Such are the real ties with television, which include a harmonious interaction and in the course of which television enriches and develops the young personality by helping it to become part of social life more actively.

When the harmony among the environment, television and the child is disturbed, the child develops the characteristics of a consumerist awareness and his emotions become largely limited to the world of television.

What is the television world? It claims to reflect our daily life, our reality. In the final account, however, it proves to be entirely different, in many cases an alien element which isolated the children by creating a social distance between it and them. It is precisely for this reason that they develop information consumerism. We reach such a situation when television does not realistically reflect but creates its own world, its own material area which clashes with the environment and with social needs.

This is frequently due to the circumstance that television creates a large number of programs which do not always maintain the necessary standard because of the "television conveyor belt." Quite frequently quantity and quality clash with the needs of society and of the child. In many cases such telecasts have an institutionalizing effect. They begin to shape in the child information needs limited to the possibilities of the medium. Such programs flood the child with information which not only deprives him of a considerable share of his time but does not develop in the child active knowledge and an active life stance.

6

Influence Mechanisms

Unquestionably, television has a great influence on children, more than on adults. This is caused not only by the external characteristics of the time used but, above all, as a result of the lack of social experience, of convictions developed by the child, of mental reactions inconsistent with the reflected object and the lack of a value system developed and accepted by the child. This influence, however, is not absolute. On the contrary, the laboratory and the field studies conducted by Soviet researcher Yu. Sherkovin prove that in their essential line the mass information media, including television, strengthen previously created concepts. To a lesser extent they accomplish minor changes and in extremely rare cases they contribute to a conversion, i.e., to a general change in an already established situation.[15] Regardless of this, this is largely not the case in children, for the very concepts developed by the child are unstable.

The daily total hour television watching creates a habit which is always related to a specific and recurring situational behavior. Let us take as an example the child's schedule at home. The time for watching television is controlled by the leisure time, regardless of the nature of the programs. Or else, it may be the result of the situation created by the television such a , for example, the "Good Night, Children" regular evening program or the specific children's telecasts every Saturday and Sunday. The habit, which is an almost automatic behavior, is countered by the expectation, i.e., the anticipatory idea of the telecast in the imagination of the child. However, whereas a habit is not an actualized behavior, the feeling of expectation is specific. Or else it is the result of a specific need which has already been triggered by that same telecast or by advance information regarding it. Thus, for example, children learn about specific telecasts which develop in them a feeling of expectation, based on the daily and weekly television schedules carried by the press, television itself and the radio, in the case of serials or special sections, i.e., telecasts which involve a periodical presentation. Furthermore, the information which shapes their expectations may "flow" along informal channels as well, such as friends, parents or teachers who occasionally help to actualize the expectation to a higher degree.

Whereas the habit is unrelated to a specific information and specific information remains on the level of a general feeling of satisfaction, expectation, triggered by the excitement of needs and the making of a decision, i.e., of a choice, represent, in fact, an ideal success of the broadcast, achieved in advance. The child begins to live with the expected idea of the telecast. Actually, it develops within itself a specific set of circumstances. It has already acquired an anticipatory attitude with a value assessment regarding the program.[16]

Under such circumstances the expectation is either confirmed or rejected. In the former case we are faced with a psychological condition of satisfaction, which creates a feeling of balance in the child and a state of harmony or comfort. In the latter, a mental situation of dissatisfaction is created, i.e., of disharmony and confusion. On the sociological level, under such circumstances we are faced with a condition of social consistency and integration as distinct from a condition of social conflict and alienation. However, when a child develops a negative set of mind and a negative expectation regarding a specific program, which, unlike the anticipated information, turns out to be harmonious, the result is a state of satisfaction which exceeds the expectation.

Unlike adults, who show a more strongly expressed selective behavior concerning a specific type of information, more frequently the children compromise on the basis of the entertainment effect of the program. Thus, for example, a number of studies conducted by Lazarsfeld helped to establish that people show a preference for programs which agree with their own concepts and expectations.[17] For example, the experiments related to smoking helped to establish that information against smoking was accepted and had an impact not on smoker but on nonsmokers. This confirms Sherkovin's thesis, according to which the information provided by the mass media more frequently asserts rather than changes or rejects preestablished viewpoints. In the case of children, however, who have still not developed such stable concepts, the impact of television is far stronger.

Another important element of the influence is the opportunity for identification. This represents the opportunity for the child to adopt one of the positions or ideas supported by information telecasts, such as "for" or "against" arguments or, in the case of feature programs, to identify with one of the characters, who are usually presented as opposites. In this case the level of such programs, the power of the arguments and the artistry of the images are important. Through such identification television develops in the child his own preliminary positions and ideas, the more so if the program meets his expectations. It is thus that through identification television indirectly becomes a very effective and influential factor of the reference group which confirms, amends, enriches or entirely changes the child's preliminary concepts. Eventually, the reference group in television "meets" through the information supplied the concepts of the various groups within the social environment (friends, parents, fellow students, teachers and so on), which groups are of great importance in molding the child's concepts; second, it faces the genetically coded and transmitted social information in the child, inherited from previous generations. It is in a latent condition in the child and, depending on the actualized new social information, it may be provoked, awakened, amended or developed.

Television and the Creative Principle

The energizing of the creative principle through television is related to two concepts: "education" or "revelation" of the child's creative potential. Whereas the former has a certain educational effect, with a potential delayed influence, the latter is related to the overall behavior of the child and has a direct or indirect impact. This begins from the selective moment of viewing as a result of a decision and, therefore, it is moved to the social environment as a behavioral feature.

This distinction may be related to children-viewers as a group with its own sociopsychological characteristics. We distinguish between two groups: "children's public" and "children's audience." In practice, these two concepts are frequently confused and we speak of public or audience as though they were the same. However, a "children's audience" is that share of the children who have a contact with television shown as a lasting, selective and firm attitude toward its programs and transmissions. Unlike the "children's audience," the "children's public" establishes its relationship on a random, spontaneous, nonselective and blanket acceptance basis.[18]

In turn, this division into audience and public is related to the type of activeness shown. We distinguish between two different types of activeness based on the

strength of the ties between the displayed activeness in the viewing of a program and activeness in social life (within the possible parameters of the child), as follows:

The first type is the real activeness.[19] In this case we have a high level of communication and substantiation between informational and social activity. The viewing of television is a cause-and-effect process based on the "social environment-children-television" system. Television viewing is a consequence of a specific social activeness, after which the viewing becomes a cause, while activeness which is the result of acquired experience, knowledge and emotions triggered by television becomes the effect. The activeness shown by the child at school and relations with other children, parents and teachers in the course of the development of artistic skills, the creation of labor habits, organized and unorganized games, entry into social-collective life and so on, trigger the child's need for informative and fictionalized television programs. Naturally, in this case the ties are polyvariant, and sometimes comprehensive and indirect. Since social activeness is not manifested as a "block," different children may be more or less active in one area at the expense of another.

In order for the child to become really active, he needs a creative climate and a creative environment. As a whole, our society offers such opportunities which have been greatly intensified in recent years and have penetrated all social areas and developed as a sociopsychological environment encouraging the manifestation of the child's creativity. Unquestionably, however, the creation of an overall social environment is not an automatic process without difficulties or deformations. For example, it is still demanded of the children that they have excellent marks in all subjects. This is entirely contradictory to the development of the individual qualities and potential of the child. This creates grounds for the development of an obsession with grades and for conformism, both of which are fully the opposite of a creative approach to the child. Quite interesting textbooks which entice the child to accept them esthetically repel the child not only at school but at home because of the requirement for additional learning, as a result of which the child looks for other opportunities for esthetic activeness. Such activeness, as a satisfaction, pleasure, emotion and manifestation, i.e., as a creative act, may be found within every child and must be acted upon. Unless society offers the child the possibility for realizing himself in a positive and useful activity, on the macro- and micro-levels, the child will do this in a reality which would be of no significance to society. This will lead to a loss related, above all, to the child's potential.

As we follow this path of development we reach the second type of activeness--that of the consumer. In this case we have a high level of information activeness and a low level of social activeness. In this case the viewing of television is of a compensatory nature, for the child is given a lesser opportunity to realize his potential in the social environment (differentiated), and expresses himself in television watching. This illusory expression is achieved through identification with characters who possess the qualities which the child would like to have. By identifying himself with these characters, the child imagines that he "can" accomplish something, that he is "able" to do something. Naturally, the child is not aware of this condition, nor are those around him. Left to his own devices, the child acquires a deformed understanding of this self-expression; the characters themselves, and their qualities, meanwhile, occasionally lack the necessary social significance.

Essentially, the viewing of television in this case is a condition of reaction, i.e., of a reflective activeness in terms of the medium. It is consistent with the behaviorist system of "stimulus-response," which is indifferent to the social environment, the possibility of self-expression within it and the needs which trigger it. Within this cycle the "television-children" interrelationship remains isolated from social needs. It is reproduced within a closed circle of trigger and expectation. The child becomes a "prisoner" of the television screen. The information he receives from the television does not energize or encourage him socially to express himself in the social environment. Because of the socially passive attitude of the child, this type of activeness offers the possibility of the child's standardization, for the creative process has been interrupted. Television cannot energize the child's creativity. In other words, television standardizes through its programs children who are more likely to be passive in their social environment.

Unlike a reaction in the case of actual activeness, we are faced here with a broadening of the cycle and with its social reproduction. This type of activeness means pitting standardization against the still frail developing personality of the child. In this case we have a creative approach to activities. In such a case television acts as a stimulus in terms of the social environment. (Naturally, in this case the meaningful aspects of television information--informative and fiction--is important. We could not undertake a specific study without the necessary content analysis of such information.) With such an active type, television does actually change, develop and enrich both the child and social reality and, as a whole, enriches the social potential. This situation, then, offers the possibility of establishing a creative link between television and children. In other words, television brings up and energizes the creative principle in children who express themselves more frequently and more actively in their social environment.

The development of the creative principle is related to the functions which television performs. The most active are the cognitive, educational, informative and entertainment functions. As a purposeful activity such functions are of a positive significance. As a social result, however, we may single out two diametrically different functions. The first is the creative, the one which awakens and which restores the artistry of the child; the other is the stereotyping, the standardizing, which standardizes, turns into cliches, restricts and suppresses the artistic base of the child. These two functions are largely related to the understanding of the television "code." For example, children with lower social activeness more frequently lack "code readiness" or the artistic cognitive readiness, for which reason they are more frequently under the influence of the stereotyping television function.

Knowledge of the television code, differentiated in accordance with the various types of telecasts and programs, means that the child is being influenced by the creative function. However, this is not to say that this function energizes exclusively the artistic manifestations of the child related to the artistic principle. It means that it brings out the creative principle as a viewpoint, as a means of thinking and acting in social life.

Let us point out in conclusion that television does not restrict, but expands, the child's outlook and thinking capacity. It enriches the feelings, emotions and imagination of the child and stimulates the creative principle. It counters conservative thinking and stereotyped emotions as a result of its potential for expanding the knowledge and enriching the emotions of the child.

FOOTNOTES

1. According to the periodical ZW-ZW, No 39/40, 1975, pp 1572-1576.

2. Ibid.

3. Ibid.

4. McLuhan, M. "Understanding Media. The Extensions of Man," New York, 1964, p 186.

5. R. Diel, "Television in the 1980's. File of the Scientific-Information Center for Culture.

6. D. Halloran, "Attention, Television!" SOTSIOLOGICHESKI PREGLED, No 3, 1979, p 5.

7. Program of the Bulgarian Communist Party, Sofia, 1971, p 91.

8. Anthology "Budushcheye Chelovecheskogo Obshechestva" [The Future of Human Society], Moscow, 1971, p 301.

9. D. Halloran, op. cit.

10. T. Petev, "Attention: Children at the Television!" NARODNA KULTURA, No 24, 1978.

11. T. Shibutani, "Sotsial'naya Psikhologiya" [Social Psychology], Sofia, 1969, p 385.

12. G. Pir'ov, "Pedagogicheska Psikhologiya" [Educational Psychology], Sofia, 1966, p 314.

13. A. N. Leontiyev, "Deyatel'nost', Soznaniye, Lichnost'" [Activity, Awareness, Personality], Moscow, 1975, p 55.

14. E. Nikolov, "On the Dissemination of Cultural Values and on Its Nature and Problems." IZVESTIYA NA NAUCHNOIZSLEDOVATELSKIYA INSTITUT PO KULTURATA, No 2, Sofia, 1979, p 13.

15. Yu. A. Sherkovin, "Psikhologicheskiye Problemy Massovykh Informatsionnykh Protsessov" [Psychological Problems of Mass Information Processes], Moscow, 1973, p 163.

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5003
CSO: 2202/17

DESIGN, CONSTRUCTION OF NEW MINICOMPUTER DISCUSSED

Warsaw INFORMATYKA in Polish No 7-8, Jul-Aug 81 pp 23-24

[Article by Janusz Zalewski: "What Should the New Polish Minicomputer Be Like?"]

[Text] Participants in a four-hour seminar held on 24 April 1981 at the MERA-IMM [Automation and Measuring Apparatus Industry - Institute of Mathematical Machines] in Warsaw attempted to answer this question. A group of specialists from the IMM, the University of Warsaw Institute of Information Science, and the MERA-System enterprises (working under the direction of Magister Engineer E. Jezierski-Ziemkiewicz) presented and discussed the preliminary concept for a minicomputer system, designated on a working basis as SOLID.

The purpose of the seminar, already prepared in the initial stage of the work on the system, was to:

--Inform the scientific community about SOLID's initial assumptions.

--Encourage the collaboration of other institutions (necessary to fully realize the project).

It should be mentioned that the project concerns a minicomputer that will be possible to introduce in a few years, let us say by 1985.

System architecture requirements were presented in the first two papers. Software and hardware operating requirements include:

--Adapting system configuration to user needs, creating various configurations-- from the simplest structures, via a local network, to complex digital systems having large calculating powers.

--Permitting rapid production of software and, later on, its easy maintenance, and the complete transferability of software (user programs as well as operating systems).

--achieving satisfactory hardware and software reliability and simplicity of service.

The following requirements are economically based: guaranteeing the usefulness of partial project results at every stage of the project and avoiding limitations that would make it impossible to adapt to unforseen changes in component technologies

and in the organization of computers. This could lead to the statement that the project should be open-ended at each stage of realization, permitting it to be adapted to current world trends or domestic capabilities.

It turns out that such sweeping requirements and the various projected applications (for example, to develop software and to control processes, and in graphic systems, telecommunications, didatic systems and data banks) impose very specific conditions from the design viewpoint. Leaving the detail explanations of the project authors, this article draws attention to only two things.

First, the designers intend to assure the required system flexibility by building a so-called multicomputer whose organization will have the attributes of a multi-processor and multi-computer system (a more accurate formulation will have to be obtained from the designers because the meaning of the word "multicomputer" is not clear to me and some other seminar participants).

Second, all software must be in a high level structural language, which also tends to direct system architecture toward this language's configurative realization.

Not much can be said about the minicomputer's configurative realization because at this time it is difficult to determine all the details of the architecture and organization, even considering technological unknowns. However, for software, which will be based on the C language, it is just the opposite. Thus, the six subsequent papers were devoted to describing various aspects of system software, beginning with the very concept and outline of the operating system, through the characteristics of the system of files and system for producing translators, and ending with the C and C-code language itself. Although this language is not well known in Poland, it already has been verified on many different machines and is used to write the UNIX operating system (Bell Laboratories, Murray Hill, New Jersey, for PDP-11 computers) which with regard to functionality is superior to the original DEC operating systems.

The most important items of the entire project, those concerning its realization, were discussed in the final three papers. Because existing software for domestically produced minicomputers and computers used in Poland is far from perfect, the designers proposed, at a minimum, the development of software based on C, for example, for the MERA 400, at the same time the necessary design changes are introduced.

During the first stage it will be necessary to build equipment to produce software, especially graphic systems, From the moment an operating system and C translator are developed for one of the standard minicomputers used in Poland, work on a generator of translators can begin. The complete project (and thus the optimum program) can be realized by building a new minicomputer (the SOLID multicomputer) for which, however, expanded work on Poland's component base is essential (while knowingly relinquishing the importation of components), especially highly integrated circuits, including programmed matrices.

The designers realize that even if these conditions are met, satisfaction will be far from complete if simultaneously production of a wide assortment of peripheral equipment is not initiated, and if distribution, service, training, documentation and publication activities are not improved.

Users and designers took part in the discussions. Above all, the former emphasized the need to begin selling peripheral equipment and expanding their assortment, and the need to greatly improve their realibility and service.

On the other hand, the designers were concerned about basic technical problems, for example, guaranteeing the component base and investigating the possibility of co-production, and problems of the C language and software generators. It was decided that these would be considered in greater detail in future IMM seminars. Some designers voiced the need for an accurate diagnosis of the need for and results of computerization. It also was proposed that an efficient, simple minicomputer system be quickly developed which would be a remedy for some of the current weak points of life. Simplicity of service and quick construction are necessary conditions for such a system. It should be understood that the purpose of such a system is the desire to fill the gap between a complicated minicomputer and the possibility of significant improvements using simple calculation devices.

In summarizing the results of the seminar, it should be said that work on a new Polish minicomputer should begin with straightening out the mess in the realm of hardware, software, service and sales. If software incompatibility, deficiencies, lack of documentation and maintenance as great as presented, then work must certainly begin (coordinated!) on a software system based on a structural language. Whether this should be the C language will have to be determined by the specialists; I did not hear any dissenting voices at the seminar, however.

One cannot practically realize work on a new computer without possessing the proper equipment, moat of all graphic systems equipped with CRT monitors, plotters and the like. Without such systems and test equipment, domestic producers of large scale integrated circuits will have a very difficult task ahead of them. In turn, it also should be remembered that a proper level of domestic production of micro-processors, semiconductor memories and programmed matrices is a basic condition for efficient work on designing a new minicomputer system, and thus the fate of the entire project.

In addition, it should be remembered that this is a big project that requires perfect coordination. From the engineering viewpoint, the realization of this project is justified, but it is feared that its goal will not be achieved if the economic and organization methods used to date are employed. It seems that organizing the seminar was the first, though small, step for changing these methods.

11899
CSO: 2602/19

COMPUTER CENTERS, SYSTEMS DESCRIBED

ZETO Computer Centers Corporation

Warsaw POLISH TECHNICAL REVIEW in English No 1, Jan 81 brochure pp 1-4

[Text]

ZETO is a State organization established to render services in the sphere of informatics to State-owned and co-operative units in order to ensure the development of modern management instruments as an integral element of the economic development of the country.

ZETO offers a wide range of services including advisory and consulting services in the domain of informatics, designing of computer systems, programming, software and hardware service, work connected with data processing, as well as designing and construction of specialis installation, air-conditioning, etc. for the needs of computer centers. Due to the wide range of activity and its large possibilities, ZETO is the main supplier of computer software to all sectors of the national economy and administration in Poland.

ZETO renders informatics services i.a. to such important branches of the economy as industry (41.7%), administration and finances (29.7%), agriculture and forestry (10.9%), trade (4.8%), transport and communications (4.6%).

Scientific and technical potential

GENERAL INFORMATION ABOUT ZETO's STRUCTURE AND RESOURCES:

● more than 6000 specialists, analysts, designers and programmers as well as technical and organizational personnel ● 16 independent ZETO enterprises rendering services over the whole territory of Poland ● 53 computer centers situated in large Polish towns ● 85 computers (ODRA, RIAD, IBM, ICL, DATAPOINT) ● experience in every domain of the national economy ● research-and-development center.

Specialists employed at ZETO have the necessary background and experience which enables them to solve new problems in many fields such as management, organization of production, engineering calculations, statistics, etc., as required by domestic and foreign users. About one third of the personnel are higher schools graduates. They have been working for at least three years in the given field of specialization and they have a good command of foreign languages (Russian, English, German or French).
One of the main products offered by

ZETO is READY-MADE SOFTWARE i.e. fully manufactured systems developed by specialists employed in ZETO enterprises throughout Poland.
The library of standard software packages of the ZETO COMPUTER CENTERS CORPORATION includes more than 70 items; each of them has been introduced at 10 users at least, including foreign ones. ZETO offers to its customers finished products together with system installation and commissioning, personnel training, guarantee and full after-sale service in the range of software maintenance and development.

Here are examples of the most representative systems manufactured at ZETO:

RODAN   Generalized Data Base Management System--a system developed on the basis of reports of the Codasyl Committee DBTG 1971/DDLC 1973. The possibilities of these two reports have been extended by the RODAN designers who have introduced:
--the Storage Structure Language
--the Support Functions Processor
--the End User's Language Generator

RODAN is designed for fast making of universal or specialised systems whose functions, method of organization and processing control require data structures and techniques unobtainable by means of the traditional data processing technologies.

SYKON   Conversational Data Base Management System. SYKON is a tool which enables finding, processing and updating of information contained in the data bases both by conversational and batch processing techniques. SYKON belongs to the class of so-called self-contained systems and is designed to serve the formated data bases. The own physical structure of the SYKON data gives the user a flexibility of the logic of data structure and a rapid implementation of the searching process.

STEP   Techno-Economic Production Control System. STEP is a utility systems generator designed, first of all, for the introduction in industrial plants of computer production control systems (activity connected with planning, order control and goods-on-stock control in a plant, etc.). The system designs employed in the STEP enable speeding up three to five times the development of production control and planning utility systems.

SEMO   Stock Management System. SEMO serves to automate filing work connected with the utilization of materials in an industrial plant. Its range covers the recording of materials on stock and in circulation, as well as objects of short service life.

SYWIN   Information Retrieval and Report Generator. This system, basing on a description of the problem prepared by the user in the special JOWIW language, generates source programs in the PL/1 language which organizes information search and printing out.

REJESTR Vehicles Recording System. REJESTR serves to automate the work connected with filing of vehicles within a region. It enables quick updating and reorganization of the filing system, searching of information and preparing of statements for the local administration, insurance, police and other organs according to appropriate input data. REJESTR is being introduced in the Transport Departments of Voivodship Boards.

SYMLEK Automatic Cows Breeding Evaluation System. SYMLEK enables complete control of the cows breeding process in a given region and, consequently, rational breeding economy. The main functions of the system include current control of the utility rate of cows and an evaluation of the breeding value of the herd. The SYMLEK system has already been introduced in a majority of Voivodship Animal Breeding Stations.

READY-MADE SOFTWARE

Some systems have already been described. Here is an extended list of selected reproducible systems offered by the ZETO Computer Centers Corporation:

RODAN – Generalized Data Base Management System

SYKON – Conversational Data Base Management System

STEP – Production Techno-Economic Control System

SEMO – Stock Management System

SIGMA 2 – Computer Materials Economy System

RURY – Power Pipelines Strength Analysis System

AWIT – Text Information Automatic Retrieval System

SYWIN – Information Retrieval and Report Program Generator

MAKROCOBOL – Cobol Programs Generation System

REJESTR – Vehicles Recording System

KSERO – National Savings Clearing System

SYBAR – Computer System for the Archivization of Hospital Medical Examination Results

GAMMA – Automated Air Traffic Control System

SYMLEK – Automatic Cows Breeding Evaluation System.

TAILOR-MADE SOFTWARE DEVELOPMENT

In the case of particularly complicated systems requiring unique computer solutions, the ZETO undertakes the development of individual utility systems. ZETO ensures complex service, from problem analysis through software design to the introduction of the system and its after-installation service and development, till the system is taken over by the trained personnel of the user.

SOFTWARE SERVICE

ZETO ensures the maintenance and updating of the existing software, as well as specialised service and experts' opinions, preparatory work and testing.

COMPUTING POTENTIAL

ZETO can make use of the processing time of its own computers: ODRA, RIAD, IBM ICL and DATAPOINT, as well as prepare data and render other services connected with data processing.

DESIGNING AND EVALUATION OF EQUIPMENT CONFIGURATION AND SOFTWARE TECHNOLOGY, DESIGNING OF COMPUTER CENTERS

ZETO undertakes specialistic services in the range of manufacturing, organization and operation of computer centers. ZETO runs a specialised Design Office which designs computer centers and their organization, as well as processing technology, design and evaluation of new equipment configurations and software technologies for the existing centers.
ZETO also offers its services in the line of the organization and start-up of computer centers according to the customer's requirements, the production of specialised installations, air-conditioning, as well as standard and specialized computer centers.

TECHNICAL SERVICE

ZETO ensures guarantee and post-guarantee technical service, undertakes the running of consignment stores of spare parts, repair service, test starting and testing.

TRAINING

ZETO offers a full range of training services within the range of its functions, basing on its own training facilities – high-class lecturers, own training centers.

Our Special Offer
We offer you the services of our software and hardware specialists, a qualified
staff capable of starting concrete jobs immediately. These specialists include
the following:
--consultants --analysts --designers --programmers --technical staff

We can hire our specialists on a contract basis for a definite period of time
or within the framework of an agreement which can be renewed every year. We
suggest that you take advantage of the possibility of employing highly qualified
personnel within a short period of time and in required numbers, with a possibil-
ity of exchanging them for other specialists as new ventures are being undertaken.

ZETO renders services in the line of informatics in every field
--fast --cheap --with guarantee

Many customers from Poland and from other countries have already made use of our
services. We are also interested in joint ventures in which we would shave the
expected profits with our partners.

ZETO Computer Centers Corporation reference list. Here are some of our customers:

Polish customers:
RODAN ● Huta Katowice Steelworks ● RCI CENPLAN ● GUS Central Statistical
Office, Warszawa ● ZNB Academy of Economics, Wroclaw ● MERA SYSTEM

SYKON ● Managing Staff Training Centre, Warszawa ● RSW "Para-Ksiazka-Ruch"
Publishers, Warszawa ● Academy of Social Sciences, Warszawa

STEP ● PONAR Precision Machine Tools Factory, Pruszkow ● AGROMET Agricul-
tural Machinery Combine, Poznan ● Cable Factory, Bydgoszcz ● UNITRA-POLKOLOR
TV Works, Piaseczno ● Diesel Engines Factory, Andrychow ● WSK Transport
Equipement Factory, Kalisz

SIGMA 2 ● Paper-Making Machinery Factory, Jelenia Gora ● MERA-ELWRO,
Wroclaw ● Technical Equipment Works, Gliwice

SEMO ● Petroleum Products Marketing Enterprise, Bydgoszcz ● Soda Works,
Janikow ● Machinery and Equipment Factory, Znin

SEMO JS ● Poultry Plant, Stawno ● FORMET Automatic Presses Factory, Bydgoszcz

SYWIN ● Transport Equipment Factory, Rzeszow ● Car Equipment Factory, Praszka
● PZL Standard Power Hydraulics Elements Combine HYDRAL, Wroclaw

AWIT ● TEKOMA Research and Development Centre for the Fundamentals of Machine
Technology and Design, Warszawa ● Chemical Industry Economic Institute,
Warszawa ● Scientific, Technical and Economic Information Center, Warszawa

RURY ● MEGADEX Designers and Suppliers of Power Plants ● Warsaw Technical
University, the Institute of Applied Mechanics

SYBAR ● Military Medical Academy, Medical Radiology Department, Lodz
● Medical Academy, Clinical Hospital No 1, Lodz

KSERO ● about 170 systems installed in the specialised branches of the PKO
National Savings Bank throughout Poland (Bydgoszcz, Gdansk, Lodz, Wroclaw)

SYMLEK ● implemented in the majority of Regional Animal Breeding Stations
(Olsztyn, Warszawa).

Foreign Customers

--INTERFLUG Airlines --GAMMA Automatic Air Traffic Control System (Berlin-
Schonefeld Airport)

--In cooperation with Penta Data Consultants, Ltd., Great Britain, the MCS6
Factory Management System has been developed for the Honeywell Level 6 computer.

--Lebediev Institute of Physics of the USSR Academy of Sciences, Moscow--
SYKON Data Base Conversational Management System

--CHEMOPETROL SPOLANA Works at Neratovice, CSSR-RODAN Universal Data Base
Management System.

ZETO Krzywickiego 34, 02-078 Warszawa, Poland
Telephones: General Director 25 06 40, Marketing Director 22 86 40
Export and Foreign Relations Department 22 86 41
Telex: 814 868 ZETI PL, 813 516 ZETI PL   EO/919/80

Data Teleprocessing Processor Software

[Article by Jozef Muszynski]

[Text]

The development of the function of equipment and services in the line of data teleprocessing has brought about a considerable demand for the computing capacity indispensable for the operation of teletransmission sub-systems.

One of the means of ensuring additional computational resources is to separate a certain computing capacity outside the central computer i.e. the so-called front-end processor designed for operation in teletransmission networks. In order to provide adequate facilities to this effect within the framework of the Unified Computer System, the Institute of Computer Automation and Measurement Systems, Wroclaw, has developed the EC 8371.01 Data Teletransmission Processor which has been already implemented in normal production at the Computer Automation and Measurement Systems Centre.

The Teletransmission Processor (PTD) is a peripheral device designed for operation in and control of communication links of teleprocessing networks. This is a special-purpose computer with five programme interruption levels executing a specialized instruction set (51 instructions).

PTD comprises the following five functional blocks:
- a control unit incorporating equipment for, among other things, the realization of the instruction set and interruptions,
- an operating store used for storing the control programme and data,
- a channel adapter connecting PTD with the central processor,
- a communication scanner controlling the operation of communication lines basing on the data fed by the control unit,
- a service block effecting the control of transmission line contact circuits.

Basic technical data:

Store capacity	16…256 kB
Number of transmission lines	up to 352
Transfer rate	50…39,000 b/s
Transfer modes	asynchronous, synchronous (BSC)

The teleprocessor PTD is controlled by a suitable control programme executing functions imposed on the data teleprocessor in a given application.

Teleprocessing software

The teleprocessing unit comprises the following components:
- technical software, i.e. a set of programmed control and debugging routines for teletransmission equipment,
- data teleprocessor software, i.e. control programmes and a package of auxiliary programmes,
- the OS/JS operating system comprising components utilizing the teletransmission sub-system for extending the functions and utilities of the operating system (e.g. the TSO time-sharing system), and also components making possible the utilization of I/O user's terminals in the programmes developed (methods of access to teletransmission equipment).

The PTD software set can be divided into two basic groups:
- functional software incorporating the PTD control programmes.
- auxiliary software used by the central computer incorporating updating and control programmes generating routines, data loading and the PTD operation initiating routines, and the PTD store content printout routines.

Control programmes are a key element of the PTD software, two basic versions of control programmes being foreseen for the PTD EC 8371.01 data teleprocessor:
EP/JS – an emulation control programme executing in PTD the emulation of functions of the EC 8402 technical multiplexer, i.e. character buffering level,
NCP/JS – a network controlling programme performing the functions of the face-end processor, i.e. the buffering of messages.

The EP/JS – emulation control programme

This emulation control programme makes possible the application of PTD in systems with software developed on the EC 8402 technical multiplexer. Besides the emulation function, the EP/JS also executes additional functions such as the monitoring of data transfer between the central computer and PTD and between PTD and communication links. This makes possible the extension of sub-system diagnostic services as well as the monitoring and reporting errors on communication links.

Using EP/JS it is also possible to control the operation of the sub-system from the PTD operator's control desk. As for the central computer, the application of the BTAM/JS or TCAM/JS access techniques is required for direct cooperation with the PTD teleprocessor equipped with the EP/JS emulation-type control programme. These access techniques involve the control of operation of each terminal connected to PTD, and each communication link requires the assignment of its own channel address for connection

with the central processor (Fig. 1). Consequently, the EP/JS control programme requires the use of a channel adapter connected to a multiplexer channel (adapter type AK1).

The EP/JS emulation programme services subscribers' points operating in the start-stop and synchronous BSC modes. The minimum store capacity required for the EP/JS emulation control programme is equal to 16 kB, the maximum number of lines serviced being 255.

Subscribers' points set controlled by the EP/JS programme comprises:

EC 8575 conversational keyboard terminal,

EC 7911/7917 remote-controlled group monitors,

EC 7915 remote-controlled independent monitor,

EC 8592 T-63 5-bit teleprinter,

DZM 180/57 conversational keyboard terminal,

The EP/JS programme also ensures the operation of commutation links by means of auto-callers.

Network Control Programme

The NCP/JS Network Control Programme utilizes fully the possibilities offered by the data teleprocessor in the line of servicing teletransmission links. It takes on some of the functions for the control of individual subscribers' points (realized by the access technique in the case of EP/JS). In addition to the functions performed by EP/JS (i.e. by the technical multiplexer), the NCP/JS programmer performs:

– the dynamic buffering of transmission blocks (messages),

– the addressing and selection of subscribers' points in multi-point lines,

– the removal of transmission control characters at line input and their subsequent shift at line output,

– the translation of line codes into a unified internal code of the central computer (DKOI) and vice versa,

– the servicing of multi – member conferences on multi – point lines, i.e. operation in a time-sharing network mode by the utilization of the communication link using terminals hooked up to multi-point lines,

– the accumulation and transfer of control restart records to the central computer so that the control programme can be restarted at any given time,

– the on-line testing of terminals coupled with the use of the access technique,

– time-sharing network operation mode i.e. a part of the line operates in the emulation mode and the other in time-sharing network mode.

Data transfer between the central computer and PTD equipped with the NCP control programme takes place through one data transfer channel, the message lines "end" in PTD and are not controlled directly by the access technique in the central computer (Fig. 2).

The form of the information exchanged between NCP and the access technique is unified and independent of the type of terminal from which the data are fed or for which they are destined.

To utilize NCP it is required that the TCAM/NCP version of the TCAM access technique ensuring suitable programme
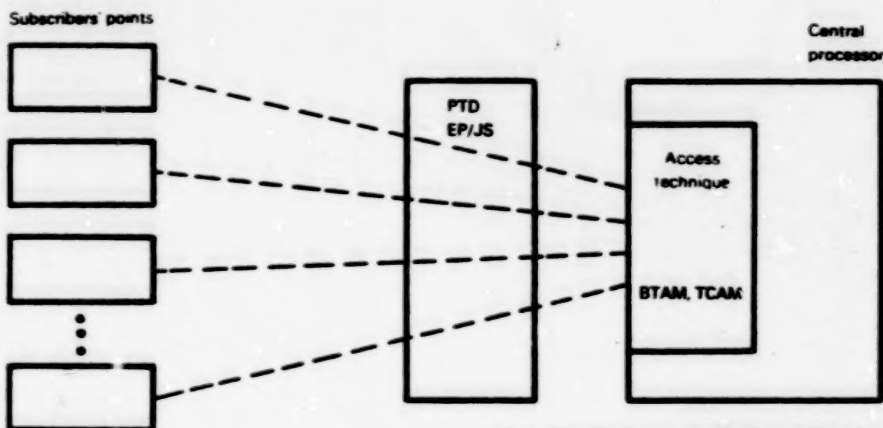

Fig. 1. Teleprocessing in the EP/JS emulation mode
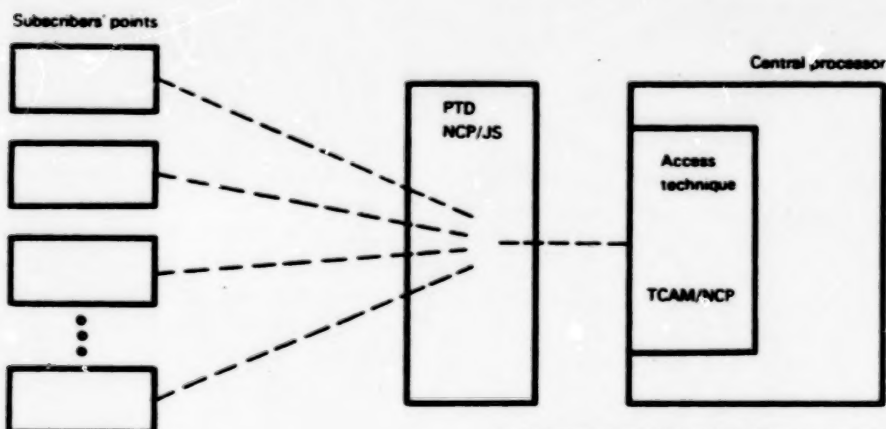

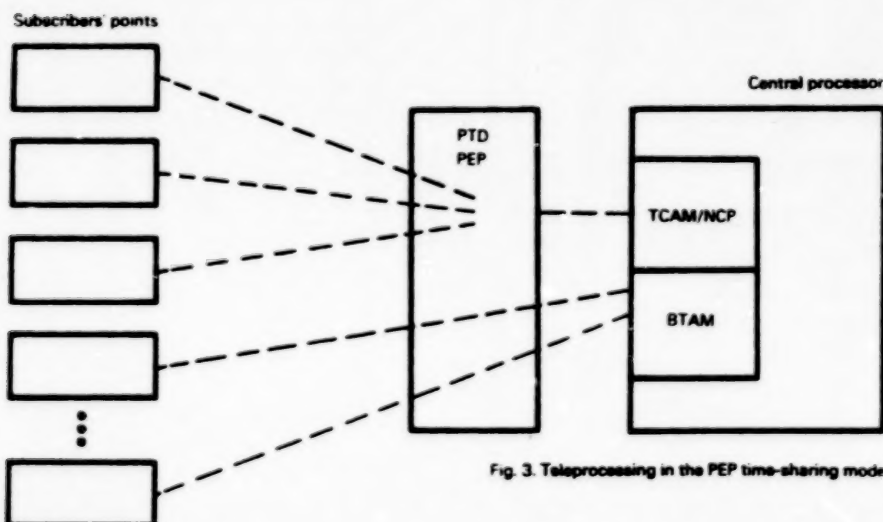Fig. 2. Teleprocessing in the NCP/JS network mode

Fig. 3. Teleprocessing in the PEP time-sharing mode

interface with the PTD data teleprocessor be used at the central computer end.

Operation in the time-sharing mode involves the simultaneous execution by the PTD of the NCP and EP functions (the so-called PEP mode), while also making possible the simultaneous operation with the TCAM/NCP and BTAM access techniques (Fig..3).

The NCP/JS control programme serves the needs of subscribers' points operating in the synchronous start-stop mode (BSC). The minimum operating PTD store capacity required for the NCP/JS programme is 48 kB, the maximum number of lines – 352 with a data transfer rate not higher than 2400 b/s. To increase the line data transfer rate it is required to reduce the number of lines (a technical limitation).

The PTD auxiliary software

The PTD EC 8371.01 auxiliary software comprises:
– programmed generation of control programmes,
– loading programme (routine),
– PTD store content dynamic printout programme,
– PTD store content independent printout programme.

Control programmes have a modular structure and are fitted to the configuration of the teletransmission network and to user's requirements during their generation stage. To describe the teletransmission network and options specified for a given installation, a special set of macro-instructions is used. The generation of control programmes takes place in several stages, depending on the kind of control programme, the PTD ASSEMBLER and a scheduler being used for that purpose. The loading routine is used for loading a given control programme module into the PTD teleprocessor store from a floppy disk set of the central computer. The PTD store content dynamic printout routine makes it possible to create a picture of a given section of the PTD store without interrupting the operation of the control programme. It is used generally for checking purposes (printout of data transfer tables). The PTD store content independent printout programme is used for obtaining the display of the entire content of the PTD store, the execution of the control programme being stopped. It is used most often in the case of faulty operation of the PTD data teleprocessor.

DECREE ON PROTECTIVE ZONES NEAR METEOROLOGICAL STATIONS

Bucharest BULETINUL OFICIAL in Romanian Part I No 59, 21 Aug 81 p 1

[Council of State Decree on the Establishment of Protective Zones around Platforms for Meteorological Observations]

[Text] The Council of State of the Socialist Republic of Romania decrees: Article 1--In order to ensure the proper quality of meteorological data which is recorded and measured on platforms for meteorological observations, a 30-meter wide protective zone is established around these platforms. This zone is not used for agriculture and the execution of any type of above-ground construction on the zone is prohibited.

The platform for meteorological observations is placed within or outside the constructable perimeters of the localities u der conditions of representativeness and are executed in accordance with legally approved standard plans.

Article 2--The placement--at a distance of up to 500 meters outside the protective zone--of constructions higher than 1/6th the distance between the construction and the limits of the protective zone, of high tension and telecommunications systems, of units producing smoke and dust, and of sprinkler systems and the planting of forest belts will be carried out only with the approval of the National Council for Water Resources.

Article 3--The National Council for Water Resources, together with the executive committees of the peoples councils of the counties and of Bucharest Municipality, will establish the site plans for the placement of the meteorological stations and the meteorological observation platforms, marking off the respective protective zones.

Article 4--Council of Ministers Decision No 1677/1953 on the approval of the instructions regulating the establishment of protective zones around the platforms of the basic meteorological stations, published in COLECTIA DE HOTARIRI SI DISPOZITII ALE CONSILIULUI DE MINISTRI No 38 of 13 June 1953, is abrogated.

NICOLAE CEAUSESCU
President of the Socialist Republic of Romania

Bucharest, 19 Aug 81
No 230

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